## REMARKS

Claims 43-99 are pending in the current application. Applicants have amended claims 43, 49, 61, and 65. Reexamination and reconsideration of all pending claims are respectfully requested.

Applicants acknowledge and appreciate the withdrawal of the drawing objections and double patenting rejections as stated on page 12 of the Office Action.

***Claim Objections***

The Office Action objected to certain claims reciting two glass materials. Applicants have amended dependent claims 49 and 61. Applicants submit that these amendments, in combination with the independent claims from which claims 49 and 61 depend, provide a proper recitation of the material and materials employed in the design(s). Applicants therefore submit that all claims, as amended, now fully comply with 37 C.F.R. § 1.75.

***35 U.S.C. § 103***

Independent Claim 65

The Office Action rejected claims 65-74 and 76-77 under 35 U.S.C. §103 based on U.S. Patent Application 2001/0040722 to Shafer et al. ("Shafer 722") in view of U.S. Patent 4,108,794 to Yonekubo ("Yonekubo") or U.S. Patent 5,825,043 to Suwa ("Suwa"). The Office Action further rejected claim 75 under 35 U.S.C. §103 based on Shafer 722 in view of Yonekubo or Suwa and further in view of Deutsch et al, WO 01/57563.

Applicants have amended independent claim 65 to recite "receiving said intermediate light energy through a back side of an optical element and providing controlled light energy from a front side of the optical element and through an immersion substance to a specimen." Shafer 722 shows a design wherein the Mangin mirror element does not have light energy passing through a back side thereof, but merely

reflecting from the element. See, Shafer 722, FIG. 3. Applicants submit that this is sufficient to distinguish the present claims over the cited references.

Independent Claims 43, 55, 78, and 90

The Office Action further rejected claims 43-51, 53-64, 78-96, and 88-99 under 35 U.S.C. 103(a) based on Shafer 722 in view of Yonekubo or Suwa and further in view of Allan, U.S. Patent 6,785,051 ("Allan"). Claims 52 and 87 are rejected under 35 U.S.C. §103(a) based on Shafer 722 in view of Yonekubo or Suwa and further in view of Allan, and still further in view of Deutsch.

It therefore takes at least ***four*** distinct and unrelated references to reject claims 52 and 87. Three diverse references are needed to be pieced together to reject independent claims 43, 55, 78, and 90. While Applicants acknowledge that there is no upper limit to the number of references that can be used in a 103 rejection, three or four references combined together to reject, for example, two element claim 90 is particularly excessive in view of the significant differences between the references themselves and the lack of motivation in the references themselves to be combined in the manner suggested. It is as if the Office Action merely seeks distinct concepts in certain references to deprecate the current invention, with no suggestion in the references themselves, a tactic which is entirely improper.

Applicants dispute the contention that the present design is obvious in view of Shafer 722 in combination with Yonekubo or Suwa and further in combination with Allan. Shafer 722 is a broad band DUV/VUV imaging system that does not employ an immersion substance, does not discuss an immersion substance, and does not illustrate an embodiment having a mangin mirror arrangement wherein light energy enters through a back or rear side and is provided to a specimen, but rather uses a mangin mirror element to provide substantially what may be termed a retro beam reflecting light energy back from the light energy received (see, e.g., FIG. 3). As noted, a critical issue is the complete absence of an immersion substance.

Neither Yonekubo nor Suwa disclose nor suggest the unique properties associated with the present design, including but not limited to providing light energy having a wavelength in the range of approximately 157 nanometers through the infrared light range and focusing the light energy using at least one lens into focused light energy, where each lens used in said focusing has diameter less than approximately 100 millimeters. Yonekubo and Suwa show immersion substances used in microscopes, but do not indicate use with light energy having a wavelength in the range of approximately 157 nanometers through the infrared light range, use focusing lenses and field lenses as claimed, or disclose or suggest at least one Mangin mirror element having diameter less than 100 millimeters receiving light energy through a back side thereof. It is as if an immersion substance was found in these references and assumed to be insertable into the Shafer device. However, one could not simply place an immersion substance within the Shafer 722 design and obtain an objective design having the beneficial aspects presently claimed or operating with any level of adequate performance. In other words, the resultant device would be a poor image and inadequate inspection in the environment claimed. Thus it is difficult, if not impossible, to argue that one would be motivated to combine the design of Shafer with the immersion substances of Yonekubo or Suwa based on the disclosure of the references themselves.

Applicants had amended the independent claims (43, 55, 78, and 90) to denote that light energy enters a back side or rear side of a mangin mirror element, a feature clearly missing from Shafer 722 and of course not mentioned whatsoever in the immersion references. Nonetheless, in an effort to again deprecate the claims, the Office Action pulls out Allan, a reference that neither shows nor suggests the use of an immersion substance, nor an objective constructed as claimed, i.e. having lenses with maximum diameter 100 millimeters, or other pertinent limitations claimed. Allan is merely cited to show a design wherein light energy passes through a mangin mirror element, i.e. through a back side of a mangin mirror element and transmitted to a specimen. None of the other limitations presented in the independent claims are disclosed or suggested in Allan. Allan does not include a specific prescription or measurements for the elements of FIG. 2. Allan does not mention an immersion

substance between the mangin element and a specimen. Allan discusses operation at less than 200 nm (ultraviolet) but does not discuss operation up to the ultraviolet range.

In sum, neither Shafer 722 nor Allan disclose or suggest use of an immersion substance whatsoever. This motivation is provided solely by the Office Action, having viewed Applicants' claims and reconstructing the claimed invention using the claims as a guide, essentially plugging in an immersion substance into a combination of Shafer 722 and Allan, if such a combination could result in anything useful. It is unclear what type of objective would result from a mangin mirror wherein light energy passes through a back side thereof in a design such as Shafer – however, it would likely not provide any type of usable inspection system, unlike the design presented in Applicants disclosure.

There is simply no suggestion in Shafer 722 to employ an immersion liquid or substance or a mangin mirror element where light energy passes through a back side thereof, and no motivation in Yonekubo or Suwa to use an immersion liquid or substance in a complex lensing design comprising, for example, field lenses, focusing lenses, and a mangin mirror element, wherein field lenses and focusing lenses have components less than 100 millimeters in diameter. There is also no teaching nor suggestion in Allan to use an immersion substance, nor to provide lenses having diameter of less than 100 millimeters. Simply put, these references are materially diverse and each reference does not suggest employing the features disclosed in any of the other references in any manner whatsoever.

The standard for making an obviousness rejection is set forth in MPEP 706.02(j):

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success

> must both be found in the prior art and not based on applicant's disclosure. [citations omitted]
>
> The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

The Office Action fails to meet this burden. Although the Office Action tries to describe how one skilled in the art would have been motivated to modify Shafer 722 to incorporate the teachings of Allan and further the teachings of Yonekubo and Suwa, these attempts fall short.

The Office Action states the motivation to combine the Shafer 722 reference with the immersion references (Yonekubo and Suwa) is that immersion substances provide "better imaging performance," and suggesting the motivation to combine is "to use a well known immersion substance with the objective of Shafer et al. to provide better imaging performance." Office Action, page 8; *see also*, page 11. This is not a motivation to combine, but a conclusory, beneficial ***result*** gleaned from the teachings of Applicants and specifically Applicants' claims in an effort to deprecate Applicants' invention.

It is disingenuous and overly simplistic to say that an alternative design, wherein an immersion substance is completely missing, but that includes an immersion substance, would be desirable. Alternatives are always desirable. However, Shafer 722 specifically contemplates an objective design for use in the DUV/VUV realm *without any need, suggestion, or motivation to employ such an immersion substance*. The immersion substance, as shown by Appellants' disclosure, enables users to successfully inspect specimens using light from 157 nm through the infrared range, where light energy passes through a back side of an element such as a mangin mirror element, features not taught

by Shafer 722. Neither Shafer 722 nor Allan in any way contemplates the use of immersion substances, even though immersion substances were known and available.

The motivation to combine Allan with these other references is said to "make the Mangin mirror of Shafer et al. in view of Yonekubo or Suwa a double-reflecting one with central apertures as suggested by [Allan] et al. to be able to make a more compact objective configuration. Therefore the Mangin mirror element will receive said intermediate light energy through a back/rear side thereof." Office Action, pp. 7-8. Applicants can think of no better example of backward reasoning than statements such as these. These are not motivations to combine; these statements are conclusory statements of plugging components from one reference into another without any support in the references themselves, any reason for combining the references, or any likelihood that such a combination could be realized or in any way successful. These statements essentially say that one would be motivated to use a mangin mirror element where light energy passes through a back side thereof in order to have a mangin mirror element where light energy passes through the back side thereof. Why would combining the Shafer 722 reference with the "double reflecting" mangin mirror of Allan "make a more compact objective configuration?" It might make a larger objective configuration, as it is difficult to understand how such a double reflecting Mangin mirror arrangement could successfully be employed in Shafer 722, such as the design of FIG. 3 thereof, how such a design would work, and what it would look like. Again, one requirement for combining references is "the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure..." There is no reasonable expectation present in Shafer 722, Allan, and/or the immersion references that use of a "double reflecting" mangin mirror element in the Shafer 722 design, such as FIG. 3 thereof, would be expected to produce a successful and useful device, without jettisoning significant parts of the designs and using Applicants' disclosure as a guide. The statements of alleged motivation to combine in the Office Action are nothing but a valiant attempt to justify a hindsight reconstruction of Applicants' claims, using Applicants' disclosure and claims as a guide.

Applicants are not advocating that the Allan mangin mirror element 60 cannot be wholesale plugged into the design of FIG. 3 of Shafer 722 (although in reality it can't). The statement at page 11 of the Office Action that it is not whether features "may be bodily incorporated" into references overly simplifies Applicants' arguments. Applicants argue that even using the general concepts disclosed in the references, one could not make a usable design from the teachings of Shafer 722 in combination with Yonekuba or Suwa and Allan. Applicants are arguing that you cannot use an immersion substance, such as is disclosed in Yonekuba and Suwa, in conjunction with a design such as Shafer 722, nor a mangin mirror having the general properties as shown in Allan with an objective design such as is shown in Shafer 722 and the immersion substances, to produce a usable objective without the need to resort to undue experimentation. The only way to get a usable design such as that suggested would be by using the teachings of Applicants.

Applicants also note that broad conclusory statements regarding the teaching of multiple references, standing alone, are not "evidence" of a motivation to combine the references. *In re Zurko*, 59 USPQ2d 1693 (Fed. Cir. 2001); *McElmurry v. Arkansas Power & Light Co.*, 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131 (Fed. Cir. 1993) ("Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of material fact.")

As noted, the PTO has the burden of establishing a prima facie case of obviousness under 35 U.S.C. § 103. The PTO must show that some objective teaching in the prior art or knowledge generally held by one of ordinary skill would lead an individual to combine the relevant teachings of the references. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988). Therefore, a combination of relevant teachings alone is insufficient grounds to establish obviousness, absent some teaching or suggestion to do so. *Id.* at 1075. In this case, the Office Action does not point to any teaching or suggestion in the cited references that would lead an artisan to come up with the claimed invention.

The Federal Circuit has held that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. *ACS Hospital System, Inc. v. Montefiore Hospital*, 732 F.2d 1572 (Fed. Cir. 1984). Without some showing in the prior art that suggests in some way a combination in order to arrive at the claimed invention, it is impermissible to use the Applicants' teaching to search references for the claimed elements and combine them as claimed. *In Re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991); *In Re Laskowski*, 871 F.2d 115, 117 (Fed. Cir. 1989); *see also*, *Ex Parte Lange*, 72 U.S.P.Q. 90, 91 (C.C.P.A. 1947) ("It seems to us that the Examiner is using appellant's disclosure for the suggestion of the combination since there is no suggestion in any of the patents for their combination in the manner claimed by Applicant."); *In re Leonor*, 158 U.S.P.Q. 20, 21 (C.C.P.A. 1968) (the issue is "whether teachings of prior art would, of themselves, and without benefit of applicant's disclosure, suggest [a process] which would make claimed invention obvious...") (emphasis in original). As noted, the Shafer 722 and Allan references do not suggest using immersion substances, such as the immersion substances of Yonekubo or Suwa, to produce the unique inspection systems and methods claimed in Applicants' independent claims 43, 55, 78, and 90.

Applicants submit that the Office Action uses hindsight in rejecting the claims herein. It is only through hindsight, after seeing Applicants' disclosure, that it would be considered possible to create the objectives and methods claimed by the Applicants. With regard to the use of hindsight, or the use of an Applicant's teaching to combine references, the courts have overwhelmingly condemned such combinations and have upheld the validity of patents or claims of patents in which such hindsight was employed to combine the references. *W.L. Gore Associates, Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983), (condemning the "insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher"); *In re Fine*, 837 F.2d at 1051 ("One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.") Appellants respectfully submit that combination of aspects of the Shafer 722 reference with the Yonekubo or Suwa references and further with the Allan design is merely a hindsight reconstruction of the invention using Applicants'

disclosure and attempting to use Applicants' claims as a guide. Such hindsight reconstruction of the claimed system is inappropriate and thus rejection of the independent claims for this reason is improper.

The argument is sometimes made, citing *In re Sernaker*, 702 F.2d 989 (Fed. Cir. 1983) and *In re Nilssen*, 851 F.2d 1401 (Fed. Cir. 1988), that no express suggestion in the references for the combination of references is necessary. However, the issue is whether the references as a whole suggest the particular combination being used to reject the claims on obviousness grounds. When the Examiner must resort to selecting elements of various teachings in order to form the claimed invention, he or she must establish first that there is a suggestion or motivation in the prior art to make the particular selection made by applicant. *In re Gorman*, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). The Examiner has not established any legitimate suggestion or motivation to make the cited combination – she has only asserted that it would be desirable to employ some type of "immersion substance" in an objective design because it might provide better imaging performance.

Applicants therefore submit that there is no motivation to combine the teachings of Shafer 722 with Yonekubo or Suwa and further with Allan present in the references themselves, and it is only through the use of impermissible hindsight that one could construct the invention as claimed. Thus claims 43, 55, 78, and 90 are not obvious in view of the cited references.

Applicants respectfully submit that combining the immersion substance of Yonekubo or Suwa with the Shafer 722 design, and further with the "double reflecting" mangin mirror arrangement of Allan is merely a hindsight reconstruction of the invention using Applicants' disclosure and claims as a guide. Such hindsight reconstruction of the claimed system is inappropriate and thus rejection of independent claims 43, 55, 78, and 90 in this manner is improper.

For the foregoing reasons, Applicants thus respectfully submit that claims 43, 55, 65, 78 and 90 are allowable over the references of record, and that all claims dependent

from these allowable independent claims are allowable as they depend from an allowable base claim.

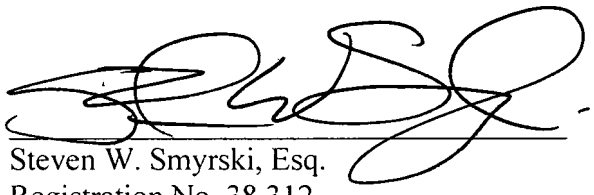
## CONCLUSION

In view of the foregoing, it is respectfully submitted that all claims of the present application are in condition for allowance. Reexamination and reconsideration of all of the claims, as amended, are respectfully requested and allowance of all the claims at an early date is solicited.

Applicants believe that no fees are due in accordance with this Response beyond those included herewith. Should any fees be due, the Commissioner is hereby authorized to charge any deficiencies or credit any overpayment to Deposit Account 502026.

Respectfully submitted,

Date: May 24, 2006



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